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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
TIMORY, KABIR A	

ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
10/02/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/555,443	IDO ET AL.	
	Examiner	Art Unit	
	KABIR A. TIMORY	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11,12,14,21 and 22* is/are rejected.

7)☒ Claim(s) *13 and 15-20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 November 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/3/2005 & 12/5/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 11, 12, 14, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singh et al. (US 20060291578) in view of Peeters et al. (US 6628738) and further in view of Goldstein et al. (US 6862552).

Regarding claims 11 and 21:

As shown in figures 1-13, Singh et al. disclose an OFDM signal receiver device comprising:

- a Fourier transform unit (64 in figure 4) for performing a Fourier transform on a received OFDM signal (see figure 2) and outputting a subcarrier component obtained as a result of said Fourier transform (par 0059, lines 1-1-11);
- a pilot extracting unit (72 in figure 4) for extracting a pilot signal contained in said subcarrier component (par 0060, lines 4-9);
- a known signal generating unit (74 in figure 4) for generating and outputting a known signal corresponding to said pilot signal (par 0060, lines 10-14);

- a first divider unit (76 in figure 4) for dividing said pilot signal by said known signal and outputting a transmission channel characteristic corresponding to said pilot signal (par 0060, lines 14-19);
- an interpolation filter unit (88 and 92 in figure 4) for calculating a transmission channel characteristic corresponding to said subcarrier component based on said transmission channel characteristic corresponding to said pilot signal (par 0065, lines 4-16);
- a second divider unit (66 in figure 4) for dividing said subcarrier component output from said Fourier transform unit (64 in figure 4) by said transmission channel characteristic output from said interpolation filter unit (88 and 92 in figure 4) to output a demodulated signal (par 0065, lines 3-21).

Singh et al. disclose all of the subject matter as described above except for specifically teaching a noise power-calculating unit for calculating an electric power corresponding to a noise component contained in said demodulated signal based on said demodulated signal and outputting a noise power signal corresponding to a result of said calculation; a weighting factor-calculating unit for calculating a weighting factor for a branch metric based on said noise power signal and said transmission channel characteristic corresponding to said subcarrier component that is output from said interpolation filter unit; and a decoding unit for decoding said demodulated signal based on said weighting factor.

However, Peeters et al. in the same field of endeavor teach a noise power-calculating unit (SNR unit in figure 3) for calculating an electric power corresponding to

a noise component contained in said demodulated signal based on said demodulated signal and outputting a noise power signal corresponding to a result of said calculation (col 7, lines 32-55); a weighting factor-calculating unit (WEIGHT unit in figure 3) for calculating a weighting factor for a branch metric based on said noise power signal and said transmission channel characteristic corresponding to said subcarrier component that is output from said interpolation filter unit (INT in figure 3, col 7, lines 32-55). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use a noise power calculating unit along with a weighting factor calculating unit as taught by Peeters et al. to modify the system and method of Singh et al. in order to obtain the timing error of the system (see col 7, lines 32-55).

Singh et al. and Peeters et al. disclose all of the subject matter as described above except for specifically teaching a decoding unit for decoding said demodulated signal based on said weighting factor.

However, Goldstein et al. in the same field of endeavor teach a decoding unit (34 in figure 3) for decoding said demodulated signal based on said weighting factor (col 2, lines 29-56, col 5, lines 44-67, and col 6, lines 1-22). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use a decoder as taught by Goldstein et al. to modify the system and method of Singh et al. in order to define the distance weight by the received signal (see col 7, lines 32-55).

Regarding claims 12 and 22:

As shown in figures 1-13, Singh et al. disclose an OFDM signal receiver device comprising:

an interpolation filter (88 and 92 in figure 4) for calculating a transmission channel characteristic corresponding to a subcarrier component which is contained in a received OFDM signal based on said transmission channel characteristic calculated based on a pilot signal in said subcarrier component and a known signal (par 0065, lines 4-16).

Singh et al. disclose all of the subject matter as described above except for specifically teaching a noise power-calculating unit for calculating an electric power corresponding to a noise component which is contained said received OFDM signal; and a weighting factor-calculating unit for calculating a weighting factor for a branch metric based on said transmission channel characteristic calculated by said interpolation filter and said electric power calculated by said noise power-calculating unit.

However, Peeters et al. in the same field of endeavor teach a noise power-calculating unit (SNR unit in figure 3) for calculating an electric power corresponding to a noise component which is contained said received OFDM signal (col 7, lines 32-55); and a weighting factor-calculating unit WEIGHT unit in figure 3) for calculating a weighting factor for a branch metric based on said transmission channel characteristic calculated by said interpolation filter and said electric power calculated by said noise power-calculating unit INT in figure 3, col 7, lines 32-55). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use a noise power calculating unit along with a weighting factor calculating unit as taught by Peeters

et al. to modify the system and method of Singh et al. in order to obtain the timing error of the system (see col 7, lines 32-55).

Regarding claim 14:

Singh et al. disclose all of the subject matter as described above except for specifically teaching wherein said noise power-calculating unit calculates a power value corresponding to a noise component contained in said OFDM signal and based on a signal corresponding to a difference between a power value corresponding to said received OFDM signal and a predetermined threshold value, and outputs as said noise power signal a signal corresponding to a result of said calculation.

However, Peeters et al. in the same field of endeavor teach wherein said noise power-calculating unit (SNR unit in figure 3) calculates a power value corresponding to a noise component contained in said OFDM signal and based on a signal corresponding to a difference between a power value corresponding to said received OFDM signal and a predetermined threshold value, and outputs as said noise power signal a signal corresponding to a result of said calculation (col 7, lines 32-55). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use a noise power calculating unit as taught by Peeters et al. to modify the system and method of Singh et al. in order to obtain the timing error of the system (see col 7, lines 32-55).

Allowable Subject Matter

3. Claims 13, 15-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record, Singh et al. does not teach or suggest a pilot correction signal-extracting unit for extracting a pilot signal contained in said demodulated signal; a signal point distance-calculating unit for calculating a distance between a signal point of said extracted pilot signal and a signal point of said known signal, or a squared value of said distance; and an averaging unit for calculating an average value of said distance or said squared value of said distance corresponding to each said pilot signal calculated in said signal point distance- calculating unit and outputting a signal corresponding to a result of said calculation as said noise power signal.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KABIR A. TIMORY whose telephone number is (571)270-1674. The examiner can normally be reached on 6:30 AM - 3:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kabir A Timory/
Examiner, Art Unit 2611
/Shuwang Liu/
Supervisory Patent Examiner, Art Unit 2611